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| **Stage 1 Desired Results** | | |
| CCSS-Mathematics Standards  2.NBT.1  2.NBT.2  2.NBT.3  2.NBT.4    1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equal 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens — called a “hundred.”  b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).  2. Count within 1000; skip-count by 5s, 10s, and 100s.  3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.  4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons. | ***nbt*** | |
| *Students will be able to independently use their learning to…*   * To use real-life experiences, physical materials, and technology to explore and demonstrate an understanding of whole number place value concepts, through 120, (counting, reading & writing) in everyday life. | |
| ***Meaning*** | |
| UNDERSTANDINGS  *Students will understand that…*   * The position of a digit determines its value. * Skip counting is directly related to following patterns, sequence, and adding or subtracting * Whole numbers can be represented in different ways * Numbers can be compared based on using place value | ESSENTIAL QUESTIONS   * How does putting the same number in a different place value make it different? * How does using place value help you compare two numbers? * How many different ways can a number be represented? * How are increasing and repeating whole number patterns the same and different? * What strategies aide in skip counting from any number? * Why should we understand place value? * What is the difference between place and value? |
| ***Acquisition*** | |
| *Students will know…*   * place value to 120 * that 100 can be thought of as a bundle of 10s * a bundle of 10s is called a 100 * numbers to 100 will be represented in a variety of ways * skip counting strategies * place value is used to compare numbers * the symbols <, >, = are used to order and compare numbers | *Students will be skilled at…*   * determining the value of any given number * representing numbers in a variety of ways   -base ten blocks  -expanded form  -number word  -standard form   * counting within a 100 * skip counting by 5s, 10s, 100s by any given number * modeling the same number in multiple ways * comparing two digit numbers using <, >, = |
| **Stage 2 - Evidence** | | |
| **Evaluative Criteria** | **Assessment Evidence** | |
| Pre-Test  Post-Test | PERFORMANCE TASK(S):   * Summative/formative assessments * Math Games * Homework * Problems of the Day * Student Journals * Mental math * Performance Task 1 * Performance Task 2 * Performance Task 3 * Performance Task 4 | |
|  | OTHER EVIDENCE: | |
| **Stage 3 – Learning Plan** | | |
| *Summary of Key Learning Events and Instruction*  **OVERVIEW**  Students extend their understanding of the base-ten system by viewing 10 tens as forming a new unit called a hundred. This lays the groundwork for understanding the structure of the base-ten system as based in repeated bundling in groups of 10 and understanding that the unit associated with each place is 10 of the unit associated with the place to its right.  The extension of place value also includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).  With skip counting, students begin to work towards multiplication when they skip by 5’s, by 10’s, and by 100’s. This skip counting is not yet true multiplication because students don’t keep track of the number of groups they have counted.  Representations such as manipulative materials, math drawings and layered three-digit place value cards also afford connections between written three-digit numbers and hundreds, tens, and ones. Number words and numbers written in base-ten numerals and as sums of their base-ten units can be connected with representations in drawings and place value cards, and by saying numbers aloud and in terms of their base-ten units, e.g. 456 is “Four hundred fifty six” and “four hundreds five tens six ones.”  Comparing magnitudes of two-digit numbers draws on the understanding that 1 ten is greater than any amount of ones represented by a one-digit number. Comparing magnitudes of three- digit numbers draws on the understanding that 1 hundred (the smallest three-digit number) is greater than any amount of tens and ones represented by a two-digit number. For this reason, three-digit numbers are compared by first inspecting the hundreds place (e.g. 845 > 799; 849 < 855).  **CONCEPTS/SKILLS TO MAINTAIN**  **It is expected that students will have prior knowledge/experience related to the concepts and skills identified below. It may be necessary to pre-assess in order to determine if time needs to be spent on conceptual activities that help students develop a deeper understanding of these ideas.**  In Grade 1, instructional time focused on four critical areas:  • Developing understanding of addition, subtraction, and strategies for addition and subtraction within 20;  • Developing understanding of whole number relationships and place value, including grouping in tens and ones;  • Developing understanding of linear measurement and measuring lengths as iterating length units; and  • Reasoning about attributes of, and composing and decomposing geometric shapes.  Routine topics such as counting, time, money, positional words, patterns, and tallying should be addressed on an ongoing basis throughout instructional time. Organizing and graphing data as stated in MCC.MD.10 should be incorporated in activities throughout the year. Students should be able to draw a picture graph and a bar graph to represent a data set with up to four categories as well as solve simple put-together, take-apart, and compare problems using information presented in a bar graph.  Progression of NBT Goals for this goal:    **SELECTED TERMS AND SYMBOLS**  The following terms and symbols are often misunderstood. These concepts are not an inclusive list and should not be taught in isolation. However, due to evidence of frequent difficulty and misunderstanding associated with these concepts, instructors should pay particular attention to them and how their students are able to explain and apply them.  The terms below are for **teacher reference only and are not to be memorized by the students**. Teachers should present these concepts to students with models and real life examples. Students should understand the concepts involved and be able to recognize and/or demonstrate them with words, models, pictures, or numbers.  • **>, =, and <**  • **categories**  • **comparison**  • **digit**  •**expanded form**  • **interpret**  • **models**  • **number names**  • **place value**  • **skip-count**  **Common Misconceptions with Place Value:**  (Information adapted from Mathematics Navigator: Misconceptions and Errors, America’s Choice)  Some students may not move beyond thinking of the number 358 as 300 ones plus 50 ones plus 8 ones to the concept of 8 singles, 5 bundles of 10 singles or tens, and 3 bundles of 10 tens or hundreds. Use base-ten blocks to model the collecting of 10 ones (singles) to make a ten (a rod) or 10 tens to make a hundred (a flat). It is important that students connect a group of 10 ones with the word *ten* and a group of 10 tens with the word *hundred.*  **1.** When counting tens and ones (or hundreds, tens, and ones), the student misapplies the procedure for counting on and treats tens and ones (or hundreds, tens, and ones) as separate numbers. When asked to count collections of bundled tens and ones such as 32, student counts 10, 20, 30, 1, 2, instead of 10, 20, 30, 31, 32.  **2.** The student has alternative conception of multi-digit numbers and sees them as numbers independent of place value. Student reads the number 32 as “thirty-two” and can count out 32 objects to demonstrate the value of the number, but when asked to write the number in expanded form, she writes “3 + 2.” Student reads the number 32 as “thirty-two” and can count out 32 objects to demonstrate the value of the number, but when asked the value of the digits in the number, she responds that the values are “3” and “2.”  **3.** The student recognizes simple multi-digit numbers, such as thirty (30) or 400 (four hundred), but she does not understand that the position of a digit determines its value. Student mistakes the numeral 306 for thirty-six. Student writes 4008 when asked to record four hundred eight.  **4.** The student misapplies the rule for reading numbers from left to right. Student reads 81 as eighteen. The teen numbers often cause this difficulty.  **5.** The student orders numbers based on the value of the digits, instead of place value. 69 > 102, because 6 and 9 are bigger than 1 and 2.    **2.NBT.2 (100 = 10 sets of 10) Activities:**  1. Place Value Sprint Game  <http://www.teacherspayteachers.com/Product/Place-Value-Sprint-to-100-game-center>  **2.NBT.1 (400 = 4 hundreds, 0 tens, 0 ones) Activities:**  1. Place Value Bings  <http://www.teacherspayteachers.com/Product/Place-Value-BINGO-Tens-and-Ones>  2. Place Value Mats  <http://www.teacherspayteachers.com/Product/Place-Value-Mats-Tens-and-Ones>  3. Math Center Games  <http://www.teacherspayteachers.com/Product/Place-Value-Math-Center-Game>  4. Smartboard Activity  <http://www.teacherspayteachers.com/Product/Place-Value-Stop-Think-Click-SmartBoard-Lesson>  5. Place Value Practice Sheet  <http://www.teacherspayteachers.com/Product/Tens-and-Ones-Place-Value>  6. Color by Place Value <http://www.teacherspayteachers.com/Product/Color-by-Place-Value>  7. I Have, Who Has Cards  <http://www.teacherspayteachers.com/Product/I-Have-Who-Has-Place-Value-at-the-Beach>  8. Pretzel Place Activity  <http://www.teacherspayteachers.com/Product/Pretzel-Place-Value>  9. Jacks Magic Beans Scoop Center  <http://www.teacherspayteachers.com/Product/Jacks-Magic-Beans-Scoop-Sort-Place-Value-Center>  10. More I Have, Who Has Cards  <http://www.teacherspayteachers.com/Product/I-Have-Who-Has-Place-Value-Ones-and-Tens>  11. What am I Place Value Workstations  <http://www.teacherspayteachers.com/Product/What-Am-I-Place-Value-workstations-game>  12. Place Value Bus Game  <http://www.teacherspayteachers.com/Product/Dont-Miss-the-Bus-Place-Value-Game>  13. Place Value Smartboard  <http://www.teacherspayteachers.com/Product/Smartboard-place-value>  14. Place Value Dice Activity  <http://www.teacherspayteachers.com/Product/Dice-Place-Value>  15. Place Value Recording Sheet  <http://www.teacherspayteachers.com/Product/Place-Value-Recording-Sheet-with-100-chart>  **2.NBT.3 (Read and write numbers using number sense) Activities:**  1. Place Value Go Fish  <http://www.teacherspayteachers.com/Product/Place-Value-Go-Fish-Math-Center>  2. I Have, Who Has Cards  <http://www.teacherspayteachers.com/Product/Place-Value-Cards-I-haveWho-Has-for-UK>  3. Down on the Farm Place Value  <http://www.teacherspayteachers.com/Product/Down-on-the-Farm-Place-Value>  4. Place Value Art Project  <http://www.teacherspayteachers.com/Product/Common-Core-Place-Value-Art-Project>  **2.NBT.3 (Read and write numbers using expanded form) Activities:**  1.Place Value Challenge  <http://www.teacherspayteachers.com/Product/Place-Value-Challenge>  2. M&M Place Value Activity  <http://www.teacherspayteachers.com/Product/MM-Place-Value-Review-standardwordexpanded>  3. Place Value War  <http://www.teacherspayteachers.com/Product/Math-Workstation-Place-Value-War>  4. Smartboard Activity using Harcourt  <http://www.teacherspayteachers.com/Product/Numbers-to-100-Place-Value-SmartBoard-Harcourt-Math-Grade-2>  5. Place Value Sheet  <http://www.teacherspayteachers.com/Product/Place-Value-Sheet-Tens-and-Ones>  2.NBT.2 (Skip count by 5s and 10s to 120) Activities:  2.NBT.4 (Compare 2 digit numbers with <, >, =) Activities:  1. Place Value Greater/Less Than  <http://www.teacherspayteachers.com/Product/Place-Value-Greater-Than-Less-Than>  2. Comparing Numbers Worksheet  <http://www.superteacherworksheets.com/place-value/greaterless-2digit_TWRBD.pdf>  3. Place Value Games  <http://www.crickweb.co.uk/ks2numeracy-calculation.html>    <http://www.ezschool.com/Games/Compare.html>  <http://www.toonuniversity.com/flash.asp?err=509&engine=9>    **Helpful Websites:**  [www.coolmath4kids.com](http://www.coolmath4kids.com)  [www.geocities.com/EnchantedForest/Tower/1217/math1.html](http://www.geocities.com/EnchantedForest/Tower/1217/math1.html)  [www.aplusmath.com/](http://www.aplusmath.com/)  <http://pbskids.org/cyberchase/>  <http://www.sheppardsoftware.com/math.htm>  <http://www.math-play.com/place-value-games.html>  <http://www.funbrain.com/kidscenter.html>  <http://www.gamequarium.com/>  <http://www.ixl.com/math/grade-2>  <http://mathwire.com/numbersense/morepv.html>  <http://www.superteacherworksheets.com/place-value.html>  <http://www.teachingideas.co.uk/maths/contents_placevalue.htm>  <http://www.softschools.com/math/worksheets/placevalue_worksheets.jsp>  <http://quizlet.com/subject/place-value/>  **Additional Resources:**  Place Value Intervention Resource  <http://www.teacherspayteachers.com/Product/Place-Value-Intervention-Plans>  Place Value Vocabulary Cards  <http://www.teacherspayteachers.com/Product/Place-Value-Vocab-Cards>  Place Value Formative Assessment Idea  <http://www.teacherspayteachers.com/Product/Place-Value-Formative-Assessment-CCSS>  Place Value Cards  <http://www.teacherspayteachers.com/Product/Place-Value-Cards-for-Representing-Numbers-to-120>    I Got Value Chant  <http://www.teacherspayteachers.com/Product/I-gotta-value>  Pre/Post Test on Place Value  <http://www.teacherspayteachers.com/Product/Place-Value-Tens-and-Ones-PrePost-Assessment>  Georgia Strandards (example)  <https://www.georgiastandards.org>  New Jersey Standards (example)  http://www.asburypark.k12.nj.us/18571051216454910/FileLib/browse.asp?A=374&BM  DRN=2000&BCOB=0&C=55728 | | |

**Books on Place Value**

**\*These books are appropriate for Units 1 and 3\***

**A Place for Zero** by Angeline Sparagna LoPresti

**A Place for Zero** can be used for a small group of students who are having difficulty understanding how zero fits into our number system. It can also be used as an introduction to a unit on number sense. Present students with two numbers, 27 and 207. Simply ask them if they are the same number, why or why not? This will prompt a discussion about how zero is not nothing but has a very valuable place in our number system. After all, would you rather have $27 or $207?

**How Much is a Million** by David Stewart

**A Million Dots** by Andrew Clements

Use one of the million books to help students visualize large numbers. Then have students bring in 100 of some sort of snack food (raisins, cheerios, pretzels, etc.) and then combine them in a bowl. As you eat the snack, talk about how many students brought in 100 treats and how many there are all together in the bowl. Although this will not create a million, it will help students to concretely see larger numbers.

## Sir Cumference and All the King's Tens

Base ten blocks are a great addition to the story **Sir Cumference and All the King's Tens.** After reading the story, you can have students simply build numbers using base ten blocks. More advanced students can build arrays to show various muliplication facts and students could even look at a number a determine how many tens are in the number. For example 34,456 has 3445 (3445.6 for more advanced students) tens in it. How many tens are in the hundreds place in that number? 45 (or 45.6). How many tens are in the thousands place?

**Two of Everything** by Lily Toy Hong

When you are teaching addition of the same number or introducing mulitiplication, **Two of Everything** is a great way to have students begin to combine numbers to see how many they will have in the end. You can have students draw number models, use counters, or draw pictures of things like 2 apples and another 2 apples is how many? Use larger numbers for older students.

## One Grain of Rice

Read **One Grain of Rice** as a springboard to exploring exponents. Read only up to the part where the Emperor gives the doubled rice on the fourth day (8 grains) and record the pattern that is being created. Have students make a prediction about how many grains of rice there will be at the end of 30 days. Then allow students to [work in groups](http://cardelean.hubpages.com/hub/What-is-Math-Workshop) to find the answer.

**One Odd Day**--and--**My Even Day**by Doris Fisher and Dani Sneed

**The Odds Get Even!**

**The Day the Odd Numbers Went on Strike**

**If You Were an Even Number** --and-- **If You Were an Odd Number**

**Missing Mittens (MathStart)** by Stuart Murphy

**Double the Ducks (MathStart)** by Stuart Murphy

**Reese's Pieces Count by Fives/Tens** by Jerry Pallotta

**How Much is a Million?** by David Schwartz

**How Big is a Million?** by Anna Milbourne

**Big Numbers --**and**-- Little Numbers** by Edward Packard

# On the Ball: Learning to Identify the Place Values of Ones and Tens (Math for the Real World: Early Emergent)

# What's the Place Value? (Little World Math) [Shirley Duke](http://www.amazon.com/s/ref=ntt_athr_dp_sr_1?_encoding=UTF8&sort=relevancerank&search-alias=books&ie=UTF8&field-author=Shirley%20Duke)

**A Million Fish....More or Less by Patricia McKissack**

**Can You Count to a Googol? by Robert E. Wells**

**The Blast Off Kid by Laura Driscoll**

**Earth Day - Hooray!** by Stuart J. Murphy

[**The King's Commissioners**](http://www.amazon.com/dp/0590489895?tag=childrenspict-20&link_code=as3&creativeASIN=0590489895&creative=373489&camp=211189) by Aileen Friedman

# Equal Shmequal by [Virginia Kroll](http://www.amazon.com/s/ref=ntt_athr_dp_sr_1?_encoding=UTF8&sort=relevancerank&search-alias=books&ie=UTF8&field-author=Virginia%20Kroll)